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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,860	06/26/2003	Jaime Hasson	MPI469 151660	1421

65589 7590 12/29/2006  
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EXAMINER
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KIM, KEVIN

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/603,860

Applicant(s)

HASSON ET AL.

Examiner

Kevin Y. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,9-11,13-15,17,21-23,25,29-31,33 and 34 is/are rejected.
- 7) ☒ Claim(s) 3-8,12,16,18-20,24,26-28 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                            | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Dujmenovic (US 6,888,580).

Dujmenovic discloses an apparatus and method, comprising first and second fractional-N synthesizers (220,230) to provide first and second modulated outphased signals. See Fig.7 in particular.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dujmenovic, as applied to claims 1 and 10 above respectively, in view of Riley (US 4,965,531).

Dujmenovic discloses all the subject matter claimed except for first and second sigma-delta modulators coupled to the first and second fractional-N synthesizers to modulate the first and second fractional-N synthesizers, respectively.

Dujmenovic suggests fractional-N synthesizers such as described in the Riley patent, which teaches a sigma-delta modulator (102) coupled to a fractional-N synthesizers. See Fig.1.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to couple sigma-delta modulators to the first and second fractional-N synthesizers of Dujmenovic as taught by Riley.

6. Claims 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dujmenovic (US 6,888,580).

Dujmenovic discloses an apparatus comprising first and second fractional-N synthesizers (220,230) to provide first and second modulated outphased signals. Dujmenovic fails to teach an implantation of the apparatus in the form of (computer readable) storage medium storing instructions (to be executed by a computer). However, such an implantation using a processor and computer readable instructions stored in a computer readable medium is well known in the art and thus would have been obvious.

7. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dujmenovic, as applied to claim 30 above in view of Riley (US 4,965,531).

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Dujmenovic discloses all the subject matter claimed except for first and second sigma-delta modulators coupled to the first and second fractional-N synthesizers to modulate the first and second fractional-N synthesizers, respectively.

Dujmenovic suggests fractional-N synthesizers such as described in the Riley patent, which teaches a sigma-delta modulator (102) coupled to a fractional-N synthesizers. See Fig.1.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to couple sigma-delta modulators to the first and second fractional-N synthesizers of Dujmenovic as taught by Riley.

8. Claims 1,2,9,10,11,14,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderone et al (US 6,480,703) in view of Huh et al (US 2002/0136341).

Claims 1,10 and 30.

Calderone et al discloses an apparatus and method, comprising first and second synthesizers (34, and 36) to provide first and second modulated outphased signals. See Fig.3. But Calderone et al fails to teach the synthesizers are of a fractional-N synthesizer type.

Huh et al teaches that fractional-N synthesizers are well known in the art to provide advantages such as less restriction in the use of the reference frequency, increased bandwidth, reduced phase noise and locking time. See paragraph [0006].

Thus, it would have been obvious to one skilled in the art at the time the invention was used to replace the frequency synthesizers of Calderone et al with fractional-N synthesizers for the purpose of reducing restriction in the use of the reference frequency, phase nose and locking time while increasing bandwidth.

Claims 2,11,31.

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Huh describes fractional-N synthesizers coupled to sigma-delta modulators. See Fig.2.

Claims 9 and 14.

See amplifiers (37,39) coupled to the frequency synthesizers.

9. Claims 15,17,22,23,25,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carsello (US 20040218699) in view of Huh et al (US 2002/0136341).

Claims 15, 22,23 and 33.

Carsello discloses a base station (104) and a mobile station (106) including a transmitter comprising first and second synthesizers (204,222) to provide first and second respective, modulated out-phased signals and a combiner (228) to combine the first and second modulated outphased signal. Based on the combination of said outphased modulated signals, a radio frequency transmission signal having a power level substantially equal to a desired power level is transmitted via a dipole antenna. See the transmitter including an antenna in Fig.2.

But Carsello fails to teach the synthesizers are of a fractional-N synthesizer type coupled to respective sigma-delta modulators.

Huh et al teaches that fractional-N synthesizers are well known in the art to provide advantages such as less restriction in the use of the reference frequency, increased bandwidth, reduced phase noise and locking time. See paragraph [0006].

Thus, it would have been obvious to one skilled in the art at the time the invention was made to replace the frequency synthesizers of Carsello et al with fractional-N synthesizers for the purpose of reducing restriction in the use of the reference frequency, phase noise and locking time while increasing bandwidth.

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Claims 17,25.

Carsello shows that the combiner comprises a reactive termination (228) and an adjustable amplifier (232).

10. Claims 21,29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carsello (US 20040218699) in view of Huh et al (US 2002/0136341), as applied to respective base claims, in view of Calderone et al (US 6,480,703).

Carsello in view of Huh et al discloses all the subject matter claimed except for the respective amplifiers coupled to the frequency synthesizers. Calderone et al teach amplifiers (37,39) coupled to frequency synthesizers (34,36) to provide a proper amplification of the amplitudes. Thus, it would have been obvious to one skilled in the art at the time the invention was made to provide amplifiers to the amplitudes of the output signals of the frequency synthesizers as deemed necessary, as taught by Calderone et al.

***Allowable Subject Matter***

11. Claims 3-8,12,16,18-20,24,26-28 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

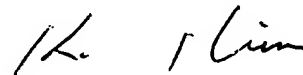
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 24, 2006

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KEVIN KIM  
PRIMARY PATENT EXAMINER

Handwritten signature of Kevin Kim in black ink.